



USDA Foreign Agricultural Service

# GAIN Report

Global Agriculture Information Network

Template Version 2.09

Voluntary Report - public distribution

**Date:** 3/22/2004

**GAIN Report Number:** VM4014

## Vietnam

### Food and Agricultural Import Regulations and Standards

### MEAT AND MEAT PRODUCTS STANDARD

**2004**

**Approved by:**

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**Report Highlights:** Meat (fresh and processed) standards for Vietnam.

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Includes PSD Changes: No  
Includes Trade Matrix: No  
Unscheduled Report  
Hanoi [VM1]  
[VM]

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## SUMMARY

On December 31, 2002 the Deputy Science and Technology Minister, Bui Manh Hai signed Decree No.22/2002/QĐ-BKHCN on Vietnam's new standards (TCVN) for 57 products including meat and meat products. The new standards listed in the decree were effective after 15 days of the signing. This report is an official translation of standards of fresh meat, frozen meat, canned meat, heat-treated meat and non-heat treated meat.

The new meat and meat product standards were based on previous Vietnam's standards, international standards (codex, ISO..), Vietnam's label regulations on import-export products (see. VM9029) and Vietnam list of hygiene requirements for food products (pls.see VM9019).

### **I. FRESH MEAT (TCVN 7046-2002)**

#### **Specification**

##### **1 Scope**

This standard applies to poultry, cattle and husbandried animal fresh meat, which is used for human consumption.

##### **2 Normative references**

Decision No.178/1999/QĐ-TTg on "Decision on labelling for domestic, imported and exported goods".

TCVN 3699 : 1990 Aquatic products. Qualitative test of hydrosulfide and ammonia.

**TCVN 4833 - 1 : 2002 Meat and meat products - Sampling and preparation of test samples. Part 1: Sampling**

**TCVN 4833 - 2 : 2002 Meat and meat products - Sampling and preparation of test samples. Part 2 : Preparation of test samples for microbiological examination.**

TCVN 4834 :1989 (ST SEV 3016 : 1981) Meat. Methods and principles of veterinary and sanitary evaluation.

**TCVN 4835 : 2002 (ISO 2917 : 1999) Meat and meat products - Measurement of pH - Reference method.**

TCVN 4991 : 1989 (ISO 7937 : 1985) Microbiology. General guidance for enumeration of *Clostridium perfringens*. Colony count technique.

TCVN 4992 : 1989 (ISO 7932 : 1987) Microbiology. General guidance for enumeration of *Bacillus cereus*. Colony count technique at 30 °C.

TCVN 5151 : 1990 Meat and meat products. Determination of lead content.

TCVN 5152 : 1990 Meat and meat products. Determination of mercury content.

TCVN 5153 : 1990 Meat and meat products. Detection of *Salmonella*.

TCVN 5155 : 1990 Meat and meat products. Detection and enumeration of *Escherichia coli*.

TCVN 5156 : 1990 Meat and meat products. Detection and enumeration of *Staphylococcus aureus*.

TCVN 5667 : 1992 Meat and meat products. Enumeration of total aerobic bacteria.

TCVN 5733 : 1993 Meat. Detection of parasites.

ISO 13493 : 1998 Meat and meat products - Detection of chloramphenicol content - Method using liquid chromatography.

AOAC 945.58 Cadmium in food - Dithizone method.

AOAC 956.10 Diethylstilbestrol in feeds - Spectrophotometric method.

AOAC 995.09 Chlortetracycline, oxytetracycline, and tetracycline in Edible Animal Tissues - Liquid chromatographic method.

AOAC 977.26 *Clostridium botulinum* and its toxin in foods - Microbiological method.

ISO 13493 : 1998 Meat and meat products - Detection of chloramphenicol content - Method using liquid chromatography.

### 3 Definition

For the purposes of this standard, the following term and definition apply.

**3.1 Fresh meat:** Meat of poultry, cattle and husbandried animal after slaughter, which is in carcasses, cuts of carcasses or minced pieces and stored at normal temperature or between 0 °C and 4 °C.

### 4 Technical requirements

#### 4.1 Raw materials

Fresh meat should be obtained from wholesome and alive poultry, cattle and husbandried animals, which is permitted by the veterinary inspection agency to be used as food.

#### 4.2 Organoleptic requirements

Organoleptic requirements of fresh meat are given in table 1.

**Table 1 - Organoleptic requirements of fresh meat**

Items	Requirements
1. State	<ul style="list-style-type: none"> <li>- Surface is dried, cleaned, without feathers, hairs and foreign matters;</li> <li>- Cut surfaces is smooth;</li> <li>- Resilient, the surface forms the initial state when pushing and releasing by a finger;</li> <li>- Marrow, if any, shall be firmly adhered to inside of bones.</li> </ul>
2. Colour	Characteristic of the designated product
3. Odour	Characteristic of the designated product, free from foreign odours
4. Broth	Sweet-smelling, clear and having large oily film

### 4.3 Physical-chemical properties

Physical-chemical properties of fresh meat are given in table 2.

**Table 2 - Physical-chemical properties of fresh meat**

Items	Requirements
1. pH	5.5 - 6.2
2. Qualitative reaction of dihydrosulfide (H <sub>2</sub> S)	negative
3. Ammonia, mg/100 g, not more than	35
4. Broth when reacting with copper sulfate (CuSO <sub>4</sub> )	rather turbid is permitted

### 4.4 Heavy metal contents

Heavy metal contents in fresh meat are given in table 3.

**Table 3 - Heavy metal contents in fresh meat**

Items	Maximum (mg/kg)	limit
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1. Lead (Pb)	0.5
2. Cadmium (Cd)	0.05
3. Mercury (Hg)	0.03

### Microbiological requirements of fresh meat

Microbiological requirements of fresh meat are given in table 4

**Table 4 - Microbiological requirements of fresh meat**

Items	Maximum limit
1. Total aerobic microorganisms, CPU/g of the product	$10^6$
2. <i>Escherichia coli</i> , count/1 g of the product	$10^2$
3. <i>Salmonella</i> , count/ 25 g of the product	0
4. <i>B. cereus</i> , count/ 1 g of the product	$10^2$
5. <i>Staphylococcus aureus</i> , count/1 g of product	$10^2$
6. <i>Clostridium perfringens</i> , count/1 g of the product	10
7. <i>Clostridium botulinum</i> , count/1 g of the product	0

### 4.6 Parasites

Parasites requirements in fresh meat are specified in table 5.

**Table 5 - Parasites requirements in fresh meat**

Items	Maximum limit
1. <i>Cysticercus csuitsae</i> ; <i>Cysticercus bovis</i> ...	not permitted
2. <i>Trichinella spiralis</i>	

### 4.7 Veterinary drugs residues

Veterinary drugs residues in fresh meat are given in table 6.

**Table 6 - Veterinary drugs residues in fresh meat**

Items	Maximum limit (mg/kg)
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1. Tetracycline	0.1
2. Chloramphenicol	not detected

#### 4.7 Pesticide residues

Pesticide residues in fresh meat are given in table 7.

**Table 7 - Pesticide residues in fresh meat**

Items	Maximum limit (mg/kg)
1. Cabaryl	0.0
2. DDT	0.1
3. 2, 4 D	0.0
4. Lindane	0.1
5. Trichlorfon	0.0
6. Diclofos	0.0
7. Diazinon	0.7
8. Fenclophos	0.3
9. Clopyrifos	0.1
10. Cuomaphos	0.2

#### 4.8 Mycotoxin

Aflatoxin B<sub>1</sub> content in fresh meat shall not be more than 0.005 mg/kg.

#### 4.9 Hormone residue

Hormone residues in fresh meat are specified in table 8.

**Table 8 - Hormone residues in fresh meat**

Items	Maximum limit (mg/kg)
1. Diethylstilbestrol	0.0
2. Testosterol	0.015
3. Estadiol	0.0005

## 5 Test methods

- 5.1 Sampling, according to the TCVN 4833 - 1 : 2002 and the TCVN 4833 - 2 : 2002.
  - 5.2 Qualitative test of hydrosulfide (H<sub>2</sub>S), according to the TCVN 3699 : 1990.
  - 5.3 Determination of ammonia (NH<sub>3</sub>) content, according to the TCVN 4834:1989 (ST SEV 3016 : 1981).
  - 5.4 Determination of pH, according to the TCVN 4835 : 2002 (ISO 2917 : 1999).
  - 5.5 Determination of lead content, according to the TCVN 5151 : 1990.
  - 5.6 Determination of cadmium content, according to the AOAC 945.58.
  - 5.7 Determination of mercury content, according to the TCVN 5152 : 1990.
  - 5.8 Determination of *Chlostridium perfringens*, according to the TCVN 4991 : 1989 (ISO 7937 : 1985).
  - 5.9 Determination of *Clostridium botulinum*, according to the AOAC 977.26.
  - 5.10 Determination of *Bacillus cereus*, according to the TCVN 4992 : 1989 (ISO 7932 : 1987).
  - 5.11 Determination of *Salmonella*, according to the TCVN 5153 : 1990.
  - 5.12 Determination of *E.coli*, according to the TCVN 5155 : 1990.
  - 5.13 Determination of *S.aureus*, according to the TCVN 5156 : 1990.
  - 5.14 Determination of total aerobic bacteria, according to the TCVN 5667 : 1992.
  - 5.15 Detection of parasites, according to the TCVN 5733 : 1993.
  - 5.16 Determination of tetracycline, according to the AOAC 995.09
  - 5.17 Determination of chloramphenicol, according to the ISO 13493 : 1998.
- Determination of hormone (diethylstilbestrol), according to the AOAC 956.10.

## 6 Labelling, packaging, storage, transport

### 6.1 Labelling

The labelling should conform to the Decision No.178-TTg on "Decision on labelling for domestic, imported and exported goods".

There should be animal quarantine mark on the product units.



## 6.2 Packaging

Packaging materials used for fresh meat should be met requirements of food safety and should not affect the product quality.

## 6.3 Transport

Means of transport used for fresh meat should be specially used for food, that should not affect the product quality.

## 6.4 Storage

At the processing area, fresh meat, after preparation, should be placed on stainless steel hangers or hooks and kept in good condition.

At the retail points, fresh meat should be keep in special cabinet with partitions to prevent dust and microorganisms penetration.

## II. FROZEN MEAT (TCVN 7047-2002)

### Specification

#### 1 Scope

This standard applies to poultry, cattle and husbandried animals frozen meat, which is used for human consumption

#### 2 Normative references

Decision No.178/1999/Q§-TTg on "Decision on labelling for domestic, imported and exported goods".

TCVN 3699 : 1990 Aquatic products. Qualitative test of hydrosulfide and ammonia.

**TCVN 4833 - 1 : 2002 Meat and meat products - Sampling and preparation of test samples. Part 1: Sampling.**

**TCVN 4833 - 2 : 2002 Meat and meat products - Sampling and preparation of test samples. Part 2 : Preparation of test samples for microbiological examination.**

TCVN 4834 :1989 (ST SEV 3016 : 1981) Meat. Methods and principles of veterinary and sanitary evaluation.

**TCVN 4835 : 2002 (ISO 2917 : 1999) Meat and meat products - Measurement of pH - Reference method.**

TCVN 4882 : 2001 (ISO 4831 : 1993) Microbiology. General guidance for the enumeration of coliforms. Most probable number technique.

TCVN 4991 : 1989 (ISO 7937 : 1985) Microbiology. General guidance for enumeration of *Clostridium perfringens*. Colony count technique.

TCVN 4992 : 1989 (ISO 7932 : 1987) Microbiology. General guidance for enumeration of *Bacillus cereus*. Colony count technique at 30°C.

TCVN 5151 : 1990 Meat and meat products. Determination of lead content.

TCVN 5152 : 1990 Meat and meat products. Determination of mercury content.

TCVN 5153 : 1990 Meat and meat products. Detection of *Salmonella*.

TCVN 5155 : 1990 Meat and meat products. Detection and enumeration of *Escherichia coli*.

TCVN 5156 : 1990 Meat and meat products. Detection and enumeration of *Staphylococcus aureus*.

TCVN 5667 : 1992 Meat and meat products. Enumeration of total aerobic bacteria.

TCVN 7046 : 2002 Meat - Specification.

ISO 13493:1998 Meat and meat products - Detection of chloramphenicol content - Method using liquid chromatography.

AOAC 945.58 Cadmium in food - Dithizone method .

AOAC 956.10 Diethylstilbestrol in feeds - Spectrophotometric method .

AOAC 995.09 Chlortetracycline, oxytetracycline, and tetracycline in Edible Animal Tissues - Liquid chromatographic method.

AOAC 977.26 *Clostridium botulinum* and its toxin in foods - Microbiological method.

### 3 Definition

**3.1 Frozen meat:** Fresh meat is frozen and kept in temperature of core of product not higher than – 12 °C.

### 4 Technical requirements

#### 4.1 Raw material

- Fresh meat, conforming with the TCVN 7046 : 2002,
- Frozen meat should not be used.

## 4.2 Organoleptic requirements

Organoleptic requirements of frozen meat are given in table 1.

**Table 1 - Organoleptic requirements of frozen meat**

Items	Requirements
<b>At frozen state</b>	
Appearance	<ul style="list-style-type: none"> <li>- Frozen meat bulks are hard, cold and getting a "sticky like glue" when touching. Surfaces of the bulk are dry, getting echo sounds when knocking. A little adhered snow is permitted.</li> <li>- Frozen meat bulks should be clean, without adhered ice, free from foreign matters and should not in thawy state.</li> </ul>
Colour	Characteristic of the designated product
<b>After thawing</b>	
Appearance	<ul style="list-style-type: none"> <li>- Resilient, surfaces are dry, free from foreign matters.</li> <li>- Fat tissues are soft, tough and keeping in their form.</li> </ul>
Colour	Characteristic of the designated product
Odour	Characteristic of the nature designated product, free from foreign odours
<b>After cooking</b>	
Odour	Characteristic of the designated product, free from foreign odours
Taste	Sweet-smelling, characteristic of the designated product
Broth	Clear and having large oily films.

## 4.3 Physical-chemical requirements

Physical-chemical properties of frozen meat are given in table 2.

**Table 2 - Physical-chemical properties of frozen meat**

Items	Requirements
1. pH	5.5 - 6.2
2. Qualitative reaction with dihydrosulfide (H <sub>2</sub> S)	Negative
3. Ammonia, mg/100 g, not more than	35

4. Broth when reacting with copper sulfate (CuSO <sub>4</sub> )	rather turbid is permitted
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#### 4.4 Heavy metal contents

Heavy metal contents in frozen meat are given in table 3.

**Table 3 - Heavy metal contents in frozen meat**

Items	Maximum limit (mg/kg)
1. Lead (Pb)	0.5
2. Cadmium (Cd)	0.05
3. Mercury (Hg)	0.03

#### 4.5 Microbiological requirements of frozen meat

Microbiological requirements of frozen meat are given in table 4.

**Table 4 - Microbiological requirements of frozen meat**

Items	Maximum limit
1. Total aerobic microorganisms, CPU/g of product	10 <sup>6</sup>
2. <i>Escherichia coli</i> , count/1 g of product	10 <sup>2</sup>
3. <i>Coliforms</i> , count/ 1 g of product	10 <sup>2</sup>
4. <i>Salmonella</i> , count/ 25 g of product	0
5. <i>B. cereus</i> , count/ 1 g of product	10 <sup>2</sup>
6. <i>Staphylococcus aureus</i> , count/1 g of product	10 <sup>2</sup>
7. <i>Clostridium botulinum</i> , count/1 g of product	0
8. <i>Clostridium perfringens</i> , count/1 g of product	10

#### 4.6 Pesticide residues

Pesticide residues in frozen meat are given in table 5.

**Table 5 - Pesticide residues in frozen meat**

Items	Maximum limit (mg/kg)
1. Cabaryl	0.0
2. DDT	0.1
3. 2, 4 D	0.0
4. Lindane	0.1
5. Trichlorfon	0.0
6. Diclofos	0.0
7. Diazinon	0.7
8. Fenclophos	0.3
9. Clopyrifos	0.1
10. Cuomaphos	0.2

#### 4.7 Veterinary drugs residues

Veterinary drugs residues of frozen meat are given in table 6.

**Table 6 - Veterinary drugs residues in frozen meat**

Items	Maximum limit (mg/kg)
1. Tetracycline	0.1
2. Chloramphenicol	not detected

#### 4.8 Mycotoxin

Aflatoxin B<sub>1</sub> content of frozen meat shall not be more than 0.005 mg/kg.

#### 4.9 Hormone residue

Hormone residues of frozen meat are specified in table 7.

**Table 7 - Hormone residues of frozen meat**

Items	Maximum limit (mg/kg)
-------	--------------------------

1. Diethylstilbestrol	0.0
2. Testosterone	0.015
3. Estradiol	0.0005

## 5 Test methods

5.1 Sampling, according to the TCVN 4833 - 1 : 2002 (ISO 3100 - 1 : 1991) and the TCVN 4833 - 2 : 2002 (ISO 3100 - 2 : 1988).

5.2 Qualitative test of hydrosulfide (H<sub>2</sub>S), according to the TCVN 3699 : 1990.

5.3 Determination of ammonia content (NH<sub>3</sub>), according to the TCVN 4834:1989 (ST SEV 3016 : 1981).

5.4 Determination of pH, according to the TCVN 4835 : 2002 (ISO 2917 : 1999).

5.5 Determination of *Coliforms*, according to the TCVN 4882 : 2001 (ISO 4831 : 1993).

5.6 Determination of *Clostridium perfringens*, according to the TCVN 4991 : 1989 (ISO 7937 : 1985).

5.7 Determination of *Bacillus cereus*, according to the TCVN 4992 : 1989.

5.8 Determination of *Clostridium botulinum*, according to the AOAC 977.26

5.9 Determination of cadmium content, according to the AOAC 945.58.

5.10 Determination of lead content, according to the TCVN 5151 : 1990.

5.11 Determination of mercury content, according to the TCVN 5152 : 1990.

5.12 Determination of *Salmonella*, according to the TCVN 5153 : 1990 (ISO 6888 : 1993).

5.13 Determination of *E.coli*, according to the TCVN 5155 : 1990.

5.14 Determination of *S.aureus*, according to the TCVN 5156 : 1990

5.15 Determination of total aerobic bacteria, according to the TCVN 5667 : 1992.

5.16 Determination of chloramphenicol according to the ISO 13493 : 1998.

5.17 Determination of tetracycline according to the AOAC 995.09.

5.18 Determination of hormone (diethylstilbestrol), according to the AOAC 956.10.

## 6 Labelling, packaging, storage and transport

### 6.1 Labelling

The labeling conforms to the Decision No.178-TTg on " Decision on labelling for domestic, imported and exported goods".

## **6.2 Packaging**

Packaging materials used for frozen meat should be specially used for foods and should not affect the product quality.

## **6.3 Transport**

Frozen meat is transported by means specially used for food, that can maintain the temperature of core of product bulks not higher than - 12 °C during transportation. The means of transport must be cleaned and disinfected regularly as well as before use.

## **6.4 Storage**

Storage period for frozen meat shall not be more than 18 months after production.

Frozen meat should be stored in special storehouse. Temperature of core of the products should not be higher than – 12 °C.

# **III. CANNED MEAT (TCVN 7048-2002)**

## **Specification**

### **1 Scope**

**This standard applies to poultry, cattle and husbandried animal canned meat, which is used directly for human consumption.**

### **2 Normative references**

Decision No. 3742/2001/Q§-BYT on "List of additives permitted for use in foods".

Decision No.178/1999/Q§-TTg on " Decision on labelling for domestic, imported and exported goods".

TCVN 1981 : 1988 Canned foods. Determination of tin content by titrimetric method.

TCVN 4991 : 1989 (ISO 7937 : 1985) Microbiology. General guidance for enumeration of *Clostridium perfringens*. Colony count technique.

TCVN 5151 : 1990 Meat and meat products. Determination of lead content.

TCVN 5152 : 1990 Meat and meat products. Determination of mercury content

TCVN 5155 : 1990 Meat and meat products. Detection and enumeration of *Escherichia coli*

TCVN 5156 : 1990 Meat and meat products. Detection and enumeration of *Staphylococcus aureus*

TCVN 5166 : 1990 Food products. Methods for enumeration of total yeasts and moulds

TCVN 7046 : 2002 Fresh meat - Specification.

TCVN 7047 : 2002 Frozen meat – Specification.

ISO 13493:1998 Meat and meat products – Detection of chloramphenicol content – Method using liquid chromatography.

AOAC 945.58 Cadmium in food - Dithizone method .

AOAC 956.10 Diethylstilbestrol in feeds - Spectrophotometric method

AOAC 995.09 Chlortetracycline, Oxytetracycline, and tetracycline in Edible Animal Tissues – Liquid chromatographic method.

AOAC 977.26 *Clostridium botulinum* and Its toxin in foods – Microbiological method.

### 3 Definition

**3.1 Canned meat:** Processed meat, which is canned in a tight container and pasteurized.

### 4 Technical requirements

#### 4.1 Raw material

- Fresh meat, conforming with the TCVN 7046 : 2002 and/or
- Frozen meat, conforming with the TCVN 7047 : 2002.

#### 4.2 Organoleptic requirements

Organoleptic requirements of canned meat are given in table 1.

**Table 1 - Organoleptic requirements of canned meat**

Items	Requirements
1. State	Characteristic of the designated product
2. Colour	Characteristic of the designated product
3. Odour, taste	Characteristic of the designated product, free from foreign odours, and having the flavour of spices and condiments



### 4.3 Physical-chemical properties

Physical-chemical properties of canned meat are given in table 2.

**Table 2 – Physical-chemical properties of canned meat**

Items	Maximum limit
1. Peroxyde index, ml of 0,002 N sodium thiosulfide ( $\text{Na}_2\text{S}_2\text{O}_3$ ) used for neutralizing total of peroxyde content containing in 1 kg of the product, not more than	5
2. Proportion of "solid/liquid"	According to the declared standards of manufacturers

### 4.4 Inside state requirements of container after opening

For non-varnished containers, light black traces appearing in inside surface are permitted. Inside surface of containers should be smooth, non-porous, without peeling varnish coat, free from pits and crevices, and the coat should even entire- surface cover if the containers are coated with varnish.

### 4.5 Heavy metal contents

Heavy metal contents in canned meat are given in table 3.

**Table 3 – Heavy metal contents in canned meat**

Items	Maximum limit (mg/kg)
1. Lead (Pb)	0,5
2. Cadmium (Cd)	0,05
3. Tin (Sn)	250
4. Mercury (Hg)	0,03

## 5 Microbiological requirements of canned meat

Microbiological requirements of canned meat are given in table 4.

**Table 4 – Microbiological requirements of canned meat**

Items	Maximum limit
1. Total of yeasts and moulds, CPU/g of product	0
2. <i>Escherichia coli</i> , count/1 g of product	0
3. <i>Staphylococcus aureus</i> , count/1 g of product	0

4. <i>Clostridium perfringens</i> , count/1 g of product.	0
5. <i>Clostridium botulinum</i> , count/1 g of product	0

#### 4.7 Veterinary drugs residues

Veterinary drugs residues in canned meat are given in table 5.

**Table 5 – Veterinary drugs residues in canned meat**

Items	Maximum limit (mg/kg)
1. Tetracycline	0.1
2. Chloramphenicol	not detected

#### 4.8 Hormone residue

Hormone residues in canned meat are specified in table 6.

**Table 6 – Hormone residues in canned meat**

Items	Maximum limit (mg/kg)
1. Diethylstilbestrol	0.0
2. Testosterone	0.015
3. Estradiol	0.0005

#### 4.9 Mycotoxin

Aflatoxin B<sub>1</sub> content in canned meat shall not be more than 0.005 mg/kg.

#### 4.10 Food additives

Only use food additives specified in the "Decision on list of additives permitted for use in foods", released enclosing with the Decision No.3742/2001/Q§-BYT on August 31<sup>st</sup>, 2001 by The Ministry of Health.

### 5 Test methods

- 5.1 Determination of *Clostridium perfringens*, according to TCVN 4991 : 1989 (ISO 7937 : 1985).
- 5.2 Determination of *Clostridium botulinum*, according to AOAC 977.26.
- 5.3 Determination of total yeasts and moulds, according to TCVN 5166 : 1990.

- 5.3 Determination of *E.coli*, according to TCVN 5155 : 1990.
- 5.4 Determination of *S.aureus*, according to TCVN 5156 : 1990.
- 5.5 Determination of lead content, according to TCVN 5151 : 1990.
- 5.6 Determination of mercury content, according to TCVN 5152 : 1990
- 5.7 Determination of cadmium content, according to AOAC 945.58.
- 5.8 Determination of tin content, according to TCVN 1981-88.
- 5.9 Determination of chloramphenicol, according to ISO 13493 : 1998.
- 5.10 Determination of tetracycline, according to AOAC 995.09.
- 5.11 Determination of hormone (diethylstilbestrol), according to AOAC 956.10.

## *6 Labelling, packaging, storage, transport*

### **6.1 Labelling**

The labelling for canned meat products should be complied to the Decision No.178-TTg on "Decision on labelling for domestic, imported and exported goods".

### **6.2 Packaging**

Canned meats should be canned in a tight containers special used for food.

The containers should not deformed and swelled out. Sealing area of the containers should not be serratiform. Labels shall be firmly adhered to the containers. Symbols, signs or letters on the labels shall be clear.

### **6.3 Transport**

Means of transport used for the canned meats should be dry, clean.

### **6.4 Storage**

- 6.5 Canned meats should be kept in dry, cool, clean places which is covered with roofs and air - circulating. Canned meats should not be exposed to direct sunlight. Manufacturer declaration of expiry date or recommended last consumption date of the products should be complied.

## **IV. HEAT-TREATED PROCESSED MEAT (TCVN 7049-2002)**

### **Specification**

#### **1 Scope**

This standard applies to poultry, cattle and husbandried animals processed meat products, which is heat - treated and used directly for human consumption.

This standard does not applies to canned meat products.

## 2 Normative references

Decision No.3742/2001/Q§-BYT on "Decision on list of additives permitted for use in foods" released on the 31<sup>st</sup> August, 2001 by the Ministry of Health.

Decision No.178/1999/Q§-TTg on "Decision on labelling for domestic, imported and exported goods".

TCVN 3699 : 1990 Aquatic products. Qualitative test of hydrosulfide and ammonia .

TCVN 4834 :1989 (ST SEV 3016 : 1981) Meat. Methods and principles of veterinary and sanitary evaluation.

TCVN 4882 : 2001 (ISO 4831 : 1993) Microbiology. General guidance for the enumeration of coliforms. Most probable number technique.

TCVN 4991 : 1989 (ISO 7937 : 1985) Microbiology. General guidance for enumeration of *Clostridium perfringens*. Colony count technique.

TCVN 4992 : 1989 (ISO 7932 : 1987) Microbiology. General guidance for enumeration of *Bacillus cereus*. Colony count technique at 30 °C.

TCVN 5151 : 1990 Meat and meat products. Determination of lead content.

TCVN 5152 : 1990 Meat and meat products. Determination of mercury content.

TCVN 5153 : 1990 (ISO 6888 : 1993) Meat and meat products. Detection of *Salmonella*.

TCVN 5155 : 1990 Meat and meat products. Detection and enumeration of *Escherichia coli*.

TCVN 5156 : 1990 Meat and meat products. Detection and enumeration of *Staphylococcus aureus*.

TCVN 5667 : 1992 Meat and meat products. Enumeration of total aerobic bacteria.

TCVN 7046 : 2002 Fresh meat - Specification.

TCVN 7047 : 2002 Frozen meat - Specification.

ISO 3091 : 1975 Meat and meat products Determination of nitrite content.

ISO 13493:1998 Meat and meat products Detection of chloramphenicol content Method using liquid chromatography.

AOAC 945.58 Cadmium in food - Dithizone method.

AOAC 956.10 Diethylstilbestrol in feeds - Spectrophotometric method.

AOAC 995.09 Chlortetracycline, oxytetracycline, and tetracycline in Edible Animal Tissues  
Liquid chromatographic method.

AOAC 977.26 *Clostridium botulinum* and its toxin in foods - Microbiological method.

### 3 Definition

**3.1 Heat - treated processed meat: Products made from poultry, cattle and husbandry animal meat, which is heat - treated with temperature of core of the products over 70 °C in its processing and unnecessarily to heat - treated again before use.**

### 4 Technical requirements

#### 4.1 Raw material

- Fresh meat, conforming with the TCVN 7046 : 2002, and/or
- Frozen meat, conforming with the TCVN 7047 : 2002.

#### 4.2 Organoleptic requirements

Organoleptic requirements of heat - treated processed meat are given in table 1.

**Table 1 - Organoleptic requirements of heat - treated processed meat**

<i>Items</i>	<i>Requirements</i>
1. Colour	Characteristic of the designated product
2. Odour	Characteristic of the nature designated product, free from foreign odours and tastes
3. State	Characteristic of the designated product

#### 4.3 Physical-chemical requirements

Physical-chemical properties of heat - treated processed meat are given in table 2.

**Table 2 - Physical-chemical properties of heat - treated processed meat**

<b>Items</b>	<b>Requirements</b>
1. Kreiss reaction	negative
2. Qualitative reaction with dihydrosulfide (H <sub>2</sub> S)	negative
3. Ammonia, mg/100 g, not more than	40,0

4. Nitrite, mg/100 g, not more than	167
5. Peroxyde index, number of mililitres of 0,002 N sodium thiosulfide (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) used for neutralizing total peroxyde content containing in 1 kilogram of the product, not more than	5

#### 4.4 Heavy metal content

Heavy metal contents in heat - treated procesed meat are given in table 3.

**Table 3 - Heavy metal contents in heat - treated procesed meat**

Items	Maximum limit (mg/kg)
1. Lead (Pb)	0,5
2. Cadmium (Cd)	0,05
3. Mercury (Hg)	0,03

#### 4.5 Microbiological requirements of heat - treated procesed meat

Microbiological requirements of heat - treated procesed meat are given in table 4.

**Table 4 - Microbiological requirements of heat - treated procesed meat**

Items	Maximum limit
1. Total aerobic microorganisms, CPU/g of product	3 .10 <sup>5</sup>
2. <i>Escherichia coli</i> , count/1 g of product	3
3. <i>Coliforms</i> , count/ 1 g of product	50
4. <i>Salmonella</i> , count/ 25 g of product	0
5. <i>B. cereus</i> , count/ 1 g of product	10
6. <i>Staphylococcus aureus</i> , count/1 g of product	10
7. <i>Clostridium botulinum</i> , count/1 g of product	0
8. <i>Clostridium perfringens</i> , count/1 g of product	0

#### 4.6 Veterinary drugs residues

Veterinary drugs residues of heat - treated procesed meat are given in table 5.

**Table 5 - Veterinary drugs residues in heat - treated processed meat**

Items	Maximum limit (mg/kg)
1. Tetracycline	0.1
2. Chloramphenicol	not detected

#### 4.7 Mycotoxin

Aflatoxin B<sub>1</sub> content of heat - treated processed meat shall not be more than 0.005 mg/kg.

#### 4.8 Hormone residue

Hormone residues of heat - treated processed meat are specified in table 6.

**Table 6 - Hormone residues of heat - treated processed meat**

Items	Maximum limit (mg/kg)
1. Diethylstilbestrol	0.0
2. Testosterone	0.015
3. Estradiol	0.0005

#### 4.9 Food additives

Only use food additives specified in the "Decision on list of additives permitted for use in foods" released enclosing with the Decision No.3742/2001/Q§-BYT on the 31<sup>st</sup> August, 2001 by the Ministry of Health.

### 5 Test methods

5.1 Qualitative test of hydrosulfide (H<sub>2</sub>S), according to the TCVN 3699 : 1990.

5.2 Determination of nitrite content (NO<sub>2</sub>), according to the ISO 3091:1975.

5.3 Determination of ammonia content (NH<sub>3</sub>), according to the TCVN 4834:1989 (ST SEV 3016 : 1981).

5.4 Determination of *Coliforms*, according to the TCVN 4882 : 2001 (ISO 4831 : 1993).

5.5 Determination of *Clostridium perfringens*, according to the TCVN 4991 : 1989 (ISO 7937 : 1985).

5.6 Determination of *Bacillus cereus*, according to the TCVN 4992 : 1989.

5.7 Determination of *Salmonella*, according to the TCVN 5153 : 1990 (ISO 6888 : 1993).

5.8 Determination of *E.coli*, according to the TCVN 5155 : 1990.

- 5.9 Determination of *S.aureus*, according to the TCVN 5156 : 19905.7
  - 5.10 Determination of *Clostridium botulinum*, according to the AOAC 977.26
  - 5.11 Determination of total aerobic bacteria, according to the TCVN 5667 : 1992.
  - 5.12 Determination of chloramphenicol according to the ISO 13493 : 1998.
  - 5.13 Determination of tetracycline according to the AOAC 995.09.
  - 5.14 Determination of hormone (diethylstylbestrol), according to the AOAC 956.10.
  - 5.15 Determination of lead content, according to the TCVN 5151 : 1990.
  - 5.16 Determination of cadmium content, according to the AOAC 945.58.
- Determination of mercury content, according to the TCVN 5152 : 1990.

## **6 Labelling, packaging, storage and transport**

### **6.1 Labelling**

The labeling shall conform to the Decision No.178-TTg on " Decision on labelling for domestic, imported and exported goods".

### **6.2 Packaging**

Packaging materials used for heat - treated processed meat should meet requirements of food safety and should not affect the product quality.

### **6.3 Transport**

Means of transport used for heat -treated processed meat products should be dry, clean. Heat treated processed meat products should not be carried in the same means of transport as other goods in a way.

### **6.4 Storage**

Heat -treated processed meat products should be stored in dry, clean places which meets requirements of food safety. Manufacturer declarations of expiry date or recommended last consumption date of the products should be complied.

## **V. NON-HEAT TREATED PROCESSED MEAT (TCVN 7050-2002)**

### **Specification**

#### **1 Scope**



**This standard applies to poultry, cattle and husbandried animal processed meat, which is non - heat treated and used directly for human consumption.**

## **2 Normative references**

Decision No.3742/2001/Q§-BYT on "Decision on list of additives permitted for use in foods" released on the 31<sup>st</sup> August, 2001 by the Ministry of Health.

Decision No.178/1999/Q§-TTg on "Decision on labelling for domestic, imported and exported goods".

TCVN 3699 : 1990 Aquatic products. Qualitative test of hydrosulfide and ammonia.

TCVN 4834 :1989 (ST SEV 3016 : 1981) Meat. Methods and principles of veterinary and sanitary evaluation.

TCVN 4882 : 2001 (ISO 4831 : 1993) Microbiology. General guidance for the enumeration of *coliforms*. Most probable number technique.

**TCVN 4835 : 2002 (ISO 2917 : 1999) Meat and meat products – Measurement of pH – Reference method.**

TCVN 4991 : 1989 (ISO 7937 : 1985) Microbiology. General guidance for enumeration of *Clostridium perfringens*. Colony count technique.

TCVN 4992 : 1989 (ISO 7932 : 1987) Microbiology. General guidance for enumeration of *Bacillus cereus*. Colony count technique at 30 °C.

TCVN 5151 : 1990 Meat and meat products. Determination of lead content.

TCVN 5152 : 1990 Meat and meat products. Determination of mercury content.

TCVN 5153 : 1990 (ISO 6888 : 1993) Meat and meat products. Detection of *Salmonella*.

TCVN 5155 : 1990 Meat and meat products. Detection and enumeration of *Escherichia coli*.

TCVN 5156 : 1990 Meat and meat products. Detection and enumeration of *Staphylococcus-aureus*.

TCVN 5667 : 1992 Meat and meat products. Enumeration of total aerobic bacteria.

TCVN 5733 : 1993 Meat. Detection of parasites.

TCVN 7046 : 2002 Fresh meat - Specification.

TCVN 7047 : 2002 Non - heat treated procesed meat - Specification.

ISO 3091 : 1975 Meat and meat products – Determination of nitrite content (Reference method).

ISO 13493:1998 Meat and meat products – Detection of chloramphenicol content – Method using liquid chromatography.

AOAC 945.58 Cadmium in food - Dithizone method.

AOAC 956.10 Diethylstilbestrol in feeds - Spectrophotometric method.

AOAC 995.09 Chlortetracycline, Oxytetracycline, and tetracycline in Edible Animal Tissues – Liquid chromatographic method .

AOAC 977.26 *Clostridium botulinum* and Its toxin in foods – Microbiological method.

### 3 Definition

**3.1 Non - heat treated procesed meat: Products made from poultry, cattle and husbandried animal processed meats, which is non - heat treated with temprature of core of the products over 70 °C in its processing and unnecessarily to cook before use.**

### 4 Technical requirements

#### 4.1 Raw materials

Fresh meat, conforming to the TCVN 7046 : 2002, and /or

Frozen meat, conforming to the TCVN 7047 : 2002.

#### 4.2 Organoleptic requirements

Organoleptic requirements of non - heat treated procesed meat are given in table 1.

**Table 1 - Organoleptic requirements of non - heat treated procesed meat**

Items	Requirements
1. Colour	Characteristic of the designated product
2. Odour	Characteristic of the designated product, free from foreign odours and tastes
3. State	Characteristic of the designated product

#### 4.3 Physical-chemical requirements

Physical-chemical properties of non - heat treated procesed meat are given in table 2.

**Table 2 - Physical-chemical properties of non - heat treated procesed meat**

Items	Requirements
1. pH	4,5 - 5,5
2. Kreiss reaction	negative
3. Qualitative of dihydrosulfide (H <sub>2</sub> S)	negative
4. Ammonia, mg/100 g, not more than	40,0
5. Nitrite, mg/100, not more than	134

#### 4.4 Heavy metal contents

Heavy metal contents in non - heat treated processed meat are given in table 3.

**Table 3 – Heavy metal contents in non - heat treated processed meat**

Items	Maximum limit (mg/kg)
1. Lead (Pb)	0.5
2. Cadmium (Cd)	0.05
3. Mercury (Hg)	0.03

#### 4.5 Microbiological requirements of non - heat treated processed meat

Microbiological requirements of non - heat treated processed meat are given in table 4.

**Table 4 – Microbiological requirements of non - heat treated processed meat**

Items	Maximum limit
1. Total aerobic microorganisms, CPU/g of product	3. 10 <sup>5</sup>
2. <i>Escherichia coli</i> , count/1 g of product	3
3. <i>Coliforms</i> , count/ 1 g of product	50
4. <i>Salmonella</i> , count/ 25 g of product	0
5. <i>B. cereus</i> , count/ 1 g of product	10
6. <i>Staphylococcus aureus</i> , count/1 g of product	10
7. <i>Clostridium botulinum</i> , count/1 g of product	0
8. <i>Clostridium perfringens</i> , count/1 g of product	10

#### 4.6 Parasites

Parasites in non - heat treated processed meat are specified in table 5.

**Table 5 – Parasites in non - heat treated processed meat**

Items	Maximum limit
1. <i>Cysticercus csuitsae</i> ; <i>Cysticercus bovis</i> ...	not permitted
2. <i>Trichinella spiralis</i>	

#### 4.7 Veterinary drugs residues

Veterinary drugs residues in non - heat treated processed meat are given in table 6.

**Table 6 – Veterinary drugs residues in non - heat treated processed meat**

Items	Maximum (mg/kg)	limit
1. Tetracycline	0.1	
2. Chloramphenicol	not detected	

**4.8 Mycotoxin**

Aflatoxin B<sub>1</sub> content in non - heat treated processed meat should not be more than 0.005 mg/kg.

**4.9 Hormone residue**

Hormone residues in non - heat treated processed meat are specified in table 7.

**Table 7 – Hormone residues in non - heat treated processed meat**

Items	Maximum (mg/kg)	limit
1. Diethylstilbestrol	0.0	
2. Testosterol	0.015	
3. Estadiol	0.0005	

**4.10 Food additives**

Only use food additives specified in the "Decision on list of additives permitted for use in foods", released enclosing with the Decision No.3742/2001/Q§-BYT on August 31<sup>st</sup>, 2001 by the Ministry of Health.

**Test methods**

Qualitative test of hydrosulfide (H<sub>2</sub>S), according to the TCVN 3699 : 1990.

5.2 Determination of ammonia (NH<sub>3</sub>) content, according to the TCVN 4834:1989 (ST SEV 3016 : 1981).

5.3 Determination of pH, according to the TCVN 4835 : 2002 (ISO 2917 : 1999).

5.4 Determination of nitrite content, according to the ISO 3091:1975

5.5 Determination of *Coliforms*, according to the TCVN 4882 : 2001 (ISO 4831 : 1993).

Determination of *Clostridium perfringens*, according to the TCVN 4991 : 1989 (ISO 7937 : 1985).

Determination of *Clostridium botulinum*, according to the AOAC 977.26.

5.7 Determination of *Bacillus cereus*, according to the TCVN 4992 : 1989.

5.8 Determination of *Salmonella*, according to the TCVN 5153 : 1990 (ISO 6888 : 1993).

- 5.9 Determination of *E.coli*, according to the TCVN 5155 : 1990.
- 5.10 Determination of *S.aureus*, according to the TCVN 5156 : 1990
- 5.11 Determination of total aerobic bacteria, according to the TCVN 5667 : 1992.
- 5.12 Determination of lead content, according to the TCVN 5151 : 1990.
- 5.13 Determination of cadmium content, according to the AOAC 945.58.
- 5.14 Determination of mercury content, according to the TCVN 5152 : 1990.
- 5.15 Detection of parasites, according to the TCVN 5733 : 1993.
- 5.16 Determination of chloramphenicol according to the ISO 13493 : 1998.
- 5.17 Determination of tetracyclin according to the AOAC 995.09.
- 5.18 Determination of hormone (diethylstilbestron) according to the AOAC 956.10.

## *6 Labelling, packaging, storage and transport*

### **6.1 Labelling**

The labelling for non - heat treated processed meat products should be complied to the decision No.178-TTg on " Decision on labelling for domestic, imported and exported goods".

### **6.2 Packaging**

Packaging materials should be specially used for food and should not affect the product quality.

### **6.3 Transport**

Means of transport used for the products should be dry, clean. Non – heat treated processed meat products should not be carried in the same means of transport as other goods in a way.

### **6.4 Storage**

The products should be kept in dry, cool and clean places which is air- circulating. Manufacturer declarations of expiry date or recommended last consumption date of the products should be complied.

**Bibliography:** Decision No. 867/1998/Q§-BYT on "List of hygiene requirements or foodstuffs" released by the Ministry of Health.